

# STAUROGYNE AGRESTIS (ACANTHACEAE), A GENUS AND SPECIES NEW TO MEXICO

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## ABSTRACT

On the basis of historical and recent collections, *Staurogyne agrestis* is reported from western Mexico. This is the first report of this genus in North America. Descriptions and illustrations are provided of this poorly known species. *Staurogyne* is compared with other Mexican Nelsonioideae.

## RESUMEN

Se cita por primera vez para México (y América del Norte) *Staurogyne agrestis*. Se describe e ilustra esta especie poco conocida. También se ofrece una clave de todos los géneros de la subfamilia Nelsonioideae en México.

*Staurogyne* Wallich comprises between 80 (Bremekamp 1955) and 140 (Champluvier 1991) species occurring in tropical America, Africa, and Asia (with one species extending into Australia). There are two major centers of diversity for species of the genus: Indo-Malesia and Brazil. Taxonomically, the genus has traditionally been treated in the subfamily Nelsonioideae of the Acanthaceae (Lindau 1895). Several students of the family (e.g., Bremekamp 1965, Sreemadhavan 1977) have advocated excluding the Nelsonioideae from the Acanthaceae. Bremekamp (1953) removed the subfamily to the Scrophulariaceae as tribe Nelsonieae. Sreemadhavan (1977) elevated Lindau's Nelsonioideae to familial status. There is no general agreement on taxonomic placement of the genera comprising the Nelsonioideae; however, most recent floristic accounts have adopted a traditional approach and included the subfamily in the Acanthaceae. Improved taxonomic resolution awaits monographic and perhaps molecular studies of these genera.

The Mexican genera of Lindau's Nelsonioideae can be distinguished by the following key:

1. Leaves alternate or clustered in pseudowhorls; spikes borne on long scaly peduncles, the scales alternate; stigma undivided, wider than 5 times the width of the style, folded over and enclosing anthers in undisturbed flowers, unfolding and becoming erect when touched. .... *Elytraria*
1. Leaves opposite; spikes sessile or borne on naked peduncles; stigma divided into 2 or more segments, these  $\leq$  the width of the style, neither folded nor enclosing anthers, not touch-sensitive.
  2. Stamens 4; anterior lobes of calyx fused for only a short distance above base. .... *Staurogyne*
  2. Stamens 2; anterior lobes of calyx fused for more than half their length. .... *Nelsonia*

Recent comprehensive studies of the genus include Bremekamp's (1955) revision of the Malaysian species and Champluvier's (1991) treatment of the five species in tropical Africa.

Most American species of *Staurogyne* have been described from Brazil (Leonard 1951). Only *Staurogyne agrestis* has been reported from Central America and it is known from few collections. The Mexican collections of *Staurogyne* noted below are the first to be reported from North America.

**Staurogyne** Wallich, Pl. Asiat. Rar. 2:80. 1831.

Herbs, sometimes suffrutescent, rarely acaulescent; stems prostrate to decumbent or ascendant to erect. Leaves opposite (or distal ones sometimes subopposite or alternate), petiolate; blades entire or shallowly dentate. Inflorescence of axillary and/or terminal spikes or racemes, these sometimes forming panicles. Calyx deeply 5-lobed, lobes equal, subequal, or usually unequal with the posterior lobe larger than others. Corolla white to yellow (sometimes with pink or purplish markings; rarely entirely red, pink, or purple), limb subregular or bilabiate, if bilabiate then upper lip 2-lobed and lower lip 3-lobed. Stamens 4 (rarely 2), didynamous, included or slightly exserted, anthers bithecous, thecae parallel or divergent, sometimes minutely mucronate at base; pollen prolate, 3-colpate to 3-colporate; staminode 1 (sometimes 0 or rarely 2–3), inconspicuous. Stigma bilobed with subequal or unequal lobes. Capsule stipitate, subellipsoid, retinacula absent or papilliform. Seeds numerous (–60), small, spheric to ellipsoid, reticulately ribbed or foveate.

TYPE: *Staurogyne argentea* Wallich.

**Staurogyne agrestis** Leonard, J. Wash. Acad. Sci. 27:400. 1937. TYPE: PANAMA.

PANAMÁ: wet field between Matías Hernández and Juan Díaz, 21 Jan 1924, Standley 31936 (HOLOTYPE: US!). (Fig. 1).

Sprawling perennial herbs to 3 dm long and 1.5 dm tall. Young stems terete to subquadrate, more or less evenly pubescent with flexuose eglandular trichomes to 2 mm long and straight to flexuose glandular trichomes 0.1–0.3 mm long. Leaves (plants sometimes leafless during anthesis) opposite, petiolate; petioles to 12 mm long; blades ovate to elliptic, 16–47 mm long, 9–22 mm wide, 1.6–2.3

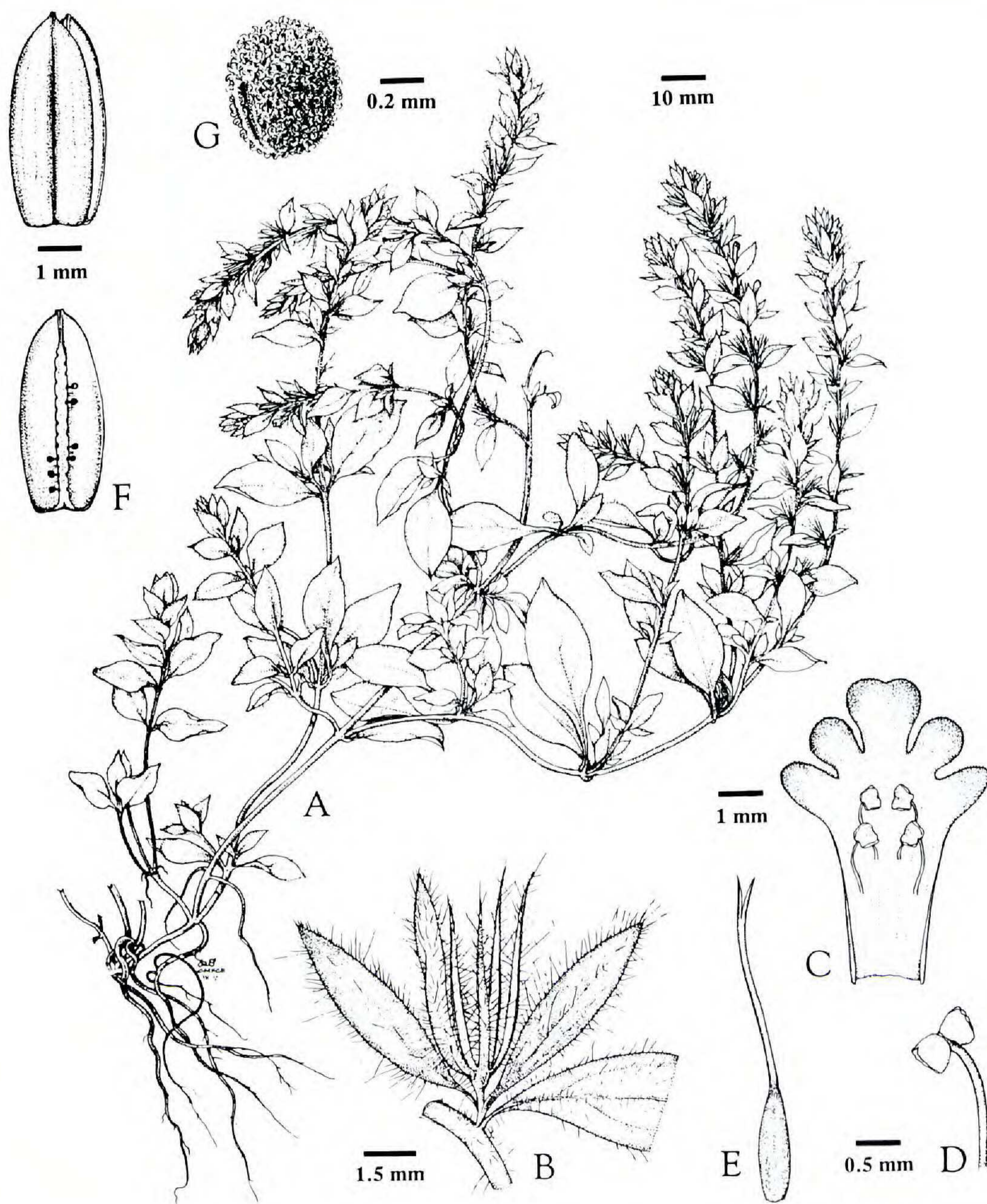


FIG. 1. *Staurogyne agrestis*. a. Habit (Lott et al. 3396). b. Inflorescence node (Lott et al. 3396). c. Corolla split open to show androecium (Lott et al. 3226). d. Stamen (Lott et al. 3226). e. Gynoecium (Lott et al. 3226), same scale as d. f. Capsule showing external surface of entire capsule, top, and internal surface of one capsule valve, bottom (Lott et al. 3396). g. Seed (Lott et al. 3396). Copyright reserved to the University of Michigan Herbarium, used with permission.

times longer than wide, acute at apex, acute to attenuate at base, surfaces pubescent with cauline type trichomes, the trichomes becoming concentrated along major veins on larger leaves, margin entire or shallowly and irregularly sinuate-dentate. Inflorescence of loosely to densely bracteate axillary or terminal spikes to 90 mm long, 8–18 mm in diameter (measured flat) near midspike,

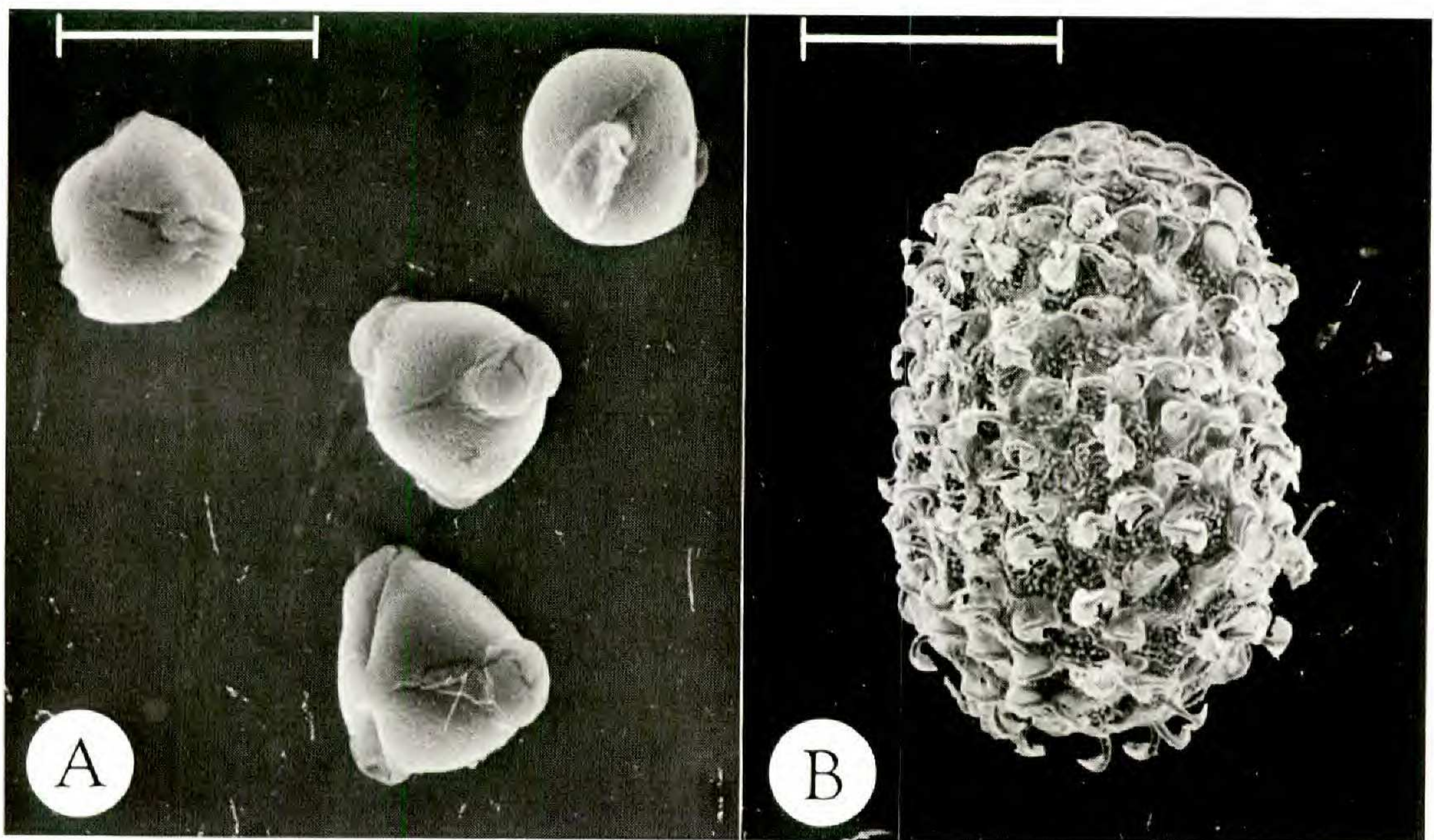


Fig. 2. Pollen and seed of *Staurogyne agrestis*. a. Pollen (*Lott et al.* 3396), scale equals 20  $\mu\text{m}$ . b. Seed (*Lott et al.* 3226), scale equals 200  $\mu\text{m}$ .

rachis pubescent like young stems; dichasia alternate, reduced to a single flower, sessile to subsessile in axils of reduced distal leaves or bracts, peduncles to 1 mm long; flowers subsessile, the pedicels to 0.8 mm long. Bracts elliptic, 6.5–11 mm long, 3–5 mm wide (proximal bracts often larger and foliose), subsessile or borne on a petiole to 1 mm long, acute at base, acute at apex, the abaxial surface and margin pubescent like young stems. Bractlets narrowly elliptic, often curved, 5–8 mm long, 1–1.6 mm wide, pubescent like bracts. Calyx 4.7–6.3 mm long, 5-lobed with lobes dissimilar, pubescent like bracts, the posterior lobe narrowly elliptic to oblanceolate, larger than the others, 4.5–6 mm long, 0.8–1.2 mm wide, the anterior lobes linear, 4–5.2 mm long, 0.4–0.5 mm wide, the 2 lateral lobes subulate, 3–4.3 mm long, 0.2–0.3 mm wide. Corolla white with a green throat, 4.5–7 mm long, externally pubescent with inconspicuous glandular trichomes 0.05–0.1 mm long, upper lip 1–1.3 mm long with rounded lobes 0.6–0.7 mm long, 0.6–0.8 mm wide, lower lip 1.5–2 mm long with lobes 0.7–1.3 mm long, 0.5–1 mm wide. Stamens 4, didynamous and inserted at different heights in corolla tube, the shorter pair inserted proximal to the longer pair, 1.2–1.3 mm long with thecae 0.3–0.4 mm long, the longer pair 1.4–1.5 mm long with thecae 0.4–0.5 mm long; pollen (mostly partially collapsed or irregular, Fig. 2) 3-colporate, the exine reticulate; staminode absent. Style 1.5–2.5 mm long, glabrous; stigma lobes 0.4 mm long. Capsule subellipsoidal, 4.5–5 mm long, distal portion pubescent with glandular trichomes 0.05–0.1 mm long. Seeds (Fig. 2) ca. 40 per capsule, subellipsoidal, 0.6–0.7 mm long, 0.4–0.5 mm wide, the surface papillate and covered with appressed or uncinulate trichomes 0.05 mm long.

*Phenology*: Flowering and fruiting: January–May (throughout range; collected in flower and fruit in January and May in Mexico).

*Distribution*: Western Mexico (Guerrero (?) and Jalisco), Nicaragua, Costa Rica, Panama, and Venezuela (Fig. 2); Mexican plants occur along sandy washes in tropical subdeciduous forests at elevations near sea level and likely somewhat higher.

Additional specimens examined: MEXICO. Jalisco: Mpio. La Huerta, Rancho Cuixmala, rd. to Parque El Caiman, S side of Río Cuixmala, 19°25'N, 104°57'W, *Lott et al.* 3226 (CAS, UCR); Mpio. La Huerta, Rancho Cuixmala, Río Cuixmala, ca. 0.5 mi downriver from headquarters, 19°23'N, 104°58'W, *Lott et al.* 3396 (MEXU, UCR). Guerrero (?): “De Nueva España camino de la Venta de la Negra,” Neé (*Exped. Malaspina*) s.n. (MA); “Acapulco camino de Mexico,” Neé (*Exped. Malaspina*) s.n. (MA).

This rarely collected species was described from Panama and Nicaragua, recently documented from Costa Rica (Daniel 1993), and is here newly reported from Venezuela (Carabobo: Chirgua, 700 m, *Alston* 5954, US). A recent collection from coastal Jalisco extends the range of *S. agrestis* considerably northward into Mexico.

Although originally determined as unknown species of *Ruellia* and *Justicia*, two Mexican collections of Luis Neé from the Malaspina Expedition (1789 to 1794) at MA also represent this species. These collections reveal that the plant had apparently gone uncollected in western Mexico for nearly 200 years. One of the Neé collections contains an early label with the information “De Nueva España camino de la Venta de la Negra.” Another Neé collection at MA, a specimen of *Dyssodia*, provides: “Venta de la Negra entra Acapulco y México.” Venta de la Negra is shown on a map of the route taken by Antonio Pineda from Acapulco to Ciudad México in 1791 (Engstrand 1981:78). In the company of Neé and others, Pineda departed Acapulco on 8 May 1791 and traversed much of the route of the modern highway between Acapulco and Ciudad México. Venta de la Negra is shown along the route between “Amates” and “Palmillas.” Modern maps of Guerrero show La Venta between Los Amates and Palmillas in northern Guerrero, ca. 10 km from the border with Morelos. The other collection of this species at MA is provided with four early labels with locality information as follows: “Acapulco camino de Mexico,” “de Acapulco,” “Chile,” and “de Chile.” A more recent label attempts to combine the locality information from these labels with “Acapulco, Chile.” Although the Malaspina expedition visited both Chile and Mexico, this species has not since been found in the former country. Considering the unequivocal locality information on the other collection at MA, it seems most probable that this collection also came from southwestern Mexico between Acapulco and Ciudad México. Although the precise locality (or localities) of these collections remains unknown, the date of collection can be established as May of 1791 because Neé and the portion of Pineda’s expedition that traveled via La Venta arrived in Ciudad México late in the month and their return was by a more easterly route (Engstrand 1981).

*Staurogyne agrestis* is morphologically similar to several South American species with small and white flowers. Standley's type specimen from Panama was originally identified as the Brazilian species *S. repens* (Nees) Kuntze and Bremekamp (1938) noted that among the six species of *Staurogyne* in Surinam, *S. stabelii* Bremekamp "comes very near to a plant recently described by Leonard as *S. agrestis*." *Staurogyne agrestis* differs from both of these species by its wider bracts and bractlets, larger leaves, and glandular pubescence. Other superficially similar South American species are *S. diantheroides* Lindau (which differs by its densely pilose pubescence in the inflorescence), *S. lepidagathoides* Leonard (which differs by its narrower bracts and bractlets and its eglandular stems), and *S. linearifolia* Bremekamp (which has narrower leaves).

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